

25 July 1962

MEMORANDUM FOR THE RECORD

SUBJECT : Wind Tunnel Tests of Photo Windows at High
Altitudes and Airspeeds.

Purpose: Recommendation for action.

1. (a) X-15 hot window tests currently being conducted by USAF do not permit the aircraft to remain in the "O" environment long enough to stabilize the thermal gradients of the window. This time should be about 40 minutes or more.

(b) The X-15 turbulence pattern and window locations do not correlate well with the "O" vehicle.

(c) The flight profile is considerably different giving different boundary layer patterns and thermal patterns.
2. (a) The earliest realistic camera, window test, at mission environment that can be predicted now is about 1 December 1962.

(b) Theoretically 200" back from the nose of the vehicle at the window location the turbulent layer will be 2 1/2" thick. Past laboratory tests indicate a limit of 100 lines per mm resolution in an environment of this kind.

(c) If it becomes necessary to provide boundary layer control at the "O" window location, an expensive and time consuming development may be required.
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3. (a) USAF per [] has plans for more photo window wind tunnel tests but no results can be expected before mid 1963.

(b) Indications are that if money was available the ASD could set up an investigation in this area and provide some accurate predictions within two months.
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4. (a) NPIC and USAF have both indicated a willingness to consider funding such a study. The projected funding by USAF was for []

USAF review(s) completed.

25X1 5. It is suggested that steps be taken to make these funds available for

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Development Division
OSA-DD/R

CONCURRENCE:

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